ARDUINO INTEGRATED DEVELOPMENT ENVIRONMENT

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Arduino is a brand of hardware and software for building simple automation systems and robotics, aimed at non-professional users. Arduino IDE is an application that allows you to write programs in a convenient text editor, compile them into machine code, and download them to all versions of Arduino. The hardware is a set of mounted printed circuit boards. The Arduino board connects to the computer via USB, where it connects to the Arduino development environment (IDE) [1].

The user writes the Arduino code in the IDE, and then loads it on the microcontroller, which executes the code, interacting with the inputs and outputs, such as sensors, motors, and lights. Users can search for information on how to customize their board or even how to code on the Arduino. The open source Arduino made it especially convenient for new and experienced users. In the public domain are numerous examples of Arduino code.

Programming is carried out entirely through its own program shell (IDE), which can be downloaded for free on the official Arduino website. The site has a text editor, a project manager, a preprocessor, a compiler and tools for downloading the program to the microcontroller. The shell is written in Java based on the Processing project, it runs under Windows, Mac OS X and Linux [2].

The Arduino programming language is a standard C ++ with the addition of special methods and functions. Programs that are written in Arduino are called sketches (or sometimes sketches – tracing paper from an English sketch) and have the extension ino. These files are processed by the Arduino preprocessor before compilation. It is also possible to create and connect standard C ++ files to the project.

Arduino, like other leading programming platforms, has built-in libraries that provide basic functionality. In addition, you can import other libraries and expand the capabilities and capabilities of the Arduino board. An interesting feature of the program is a built-in set of sample programs. This is very convenient, as examples of programs can be immediately checked by downloading them to the microcontroller. If necessary, you can save an example and change it according to your needs.

The Arduino development environment consists of:

- built-in text editor of program code;
- message area;
- text window (console);
- toolbar with frequently used command buttons and several menus.

Using the software environment Arduino IDE, you can, based only on knowledge of C++, to construct all kinds of interactive, educational, experimental, entertainment models and devices.

References

[1] Official Site Arduino [Electronic resource]. – Resource Access Mode: https://www.arduino.cc

[2] Arduino Wikipedia [Electronic resources]. – Resource Access Mode: https://en.wikipedia.org/wiki/Arduino